National Institute of Environmental Health Sciences

Associations between grass and weed pollen and emergency department visits for asthma among children in Montreal

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Abstract:

Context and objective: Asthma among children is a major public health problem worldwide. There are increasing number of studies suggesting a possible association between allergenic pollen and exacerbations of asthma. In the context of global climate change, a number of future climate and air pollution scenarios predict increases in concentrations of pollen, an extension of the pollen season, and an increase in the allergenicity of pollen. The goal of the present study is to evaluate the short-term effects of exposure to grass and weed pollen on emergency department visits and readmissions for asthma among children aged 0-9 years living in Montreal between April and October, 1994-2004. Methodology and results: Time-series analyses were carried out using parametric log-linear overdispersed Poisson models that were adjusted for temporal variations, daily weather conditions (temperature, atmospheric pressure), and gaseous air pollutants (ozone and nitrogen dioxide). We have found positive associations between emergency department visits and concentrations of grass pollen 3 days after exposure. The effect of grass pollen was higher on emergency department readmissions as compared to initial visits. Weak negative associations were found between weed pollen (including ragweed pollen) and emergency department visits 2 days after exposure. Conclusion: The data indicate that among children, emergency department visits increased with increasing concentrations of grass pollen.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Temperature

Air Pollution: Allergens, Ozone, Other Air Pollution

Air Pollution (other): NO2

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

Urban

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Non-U.S. North America

Health Impact:

specification of health effect or disease related to climate change exposure

Respiratory Effect

Respiratory Effect: Asthma

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Children

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified